

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently amended) A process for the preparation of water insoluble, bio-release iron-manganese polyphosphate fertilizer, ~~which comprises the process consisting of~~

a) heating phosphoric acid at a temperature of at least above 160°C with a mixture of (i) a source of iron oxide including one or more substance selected from the group consisting of goethite and hematite, (ii) pyrolusite and (iii) one or more basic compound[[s)] selected from the group consisting of magnesium oxide(s), magnesium carbonate, calcium oxide, sodium oxide, potassium oxide, calcium carbonate, sodium carbonate, and potassium carbonate ~~oxide(s), and carbonate(s) of magnesium, calcium, sodium and potassium,~~ for a time period ranging from 20 [[min]] minutes to 2 [[hr]] hours, ~~thereby producing to produce~~ a liquid polyphosphate; which has an appropriate degree of incomplete polymerization as characterized by solubility in 0.33M citric acid and 0.005M DTPA of the neutralized product in stage (b), followed by

Applicant: Chandrika Varadachari
Application No.: 10/567,303

b) neutralizing neutralization of the liquid polyphosphate, wherein the neutralized liquid is characterized by solubility in 0.33M citric acid and 0.005M DTPA; then

c) drying the neutralized ~~material~~ liquid polyphosphate to obtain a solid; and

d) pulverizing the solid ~~pulverization~~.

2. (Original) A process as claimed in claim 1 wherein the iron oxide and pyrolusite are used in any of the molar ratios $\text{Fe} : \text{Mn} = 1 : 0.1$ to $0.1 : 1$.

3. (Currently amended) A process as claimed in claim 1 wherein if the one or more basic compound[[s]] ~~are includes~~ selected from the group consisting of magnesium oxide(s), magnesium carbonate, calcium oxide or calcium carbonate ~~oxides, carbonates of magnesium, and calcium,~~ the molar ratio[[s]] of $\text{Fe} : \text{Mg/Ca}$ ~~are~~ is between $1 : 0.6$ to $1 : 1.75$.

4. (Currently amended) A process as claimed in claim 1 wherein if the one or more basic compound[[s]] ~~are includes~~ selected from the group consisting of sodium oxide, sodium carbonate, potassium oxide, or potassium carbonate ~~oxides, and carbonates of sodium and potassium,~~ the molar ratio[[s]] of $\text{Fe} : \text{Na/K}$ ~~are is~~ is between $1 : 1.2$ to $1 : 3.5$.

5. (Currently amended) A process as claimed in claim 3 wherein the one or more basic compound is magnesium oxide(s) or magnesium carbonate ~~the oxide or carbonate of magnesium.~~

6. (Currently amended) A process as claimed in claim 1 wherein the phosphoric acid is of a strength up to 60% P₂O₅.

7. (Previously presented) A process as claimed in claim 1 wherein the phosphoric acid is in an amount equal to or greater than that required to convert all cations in the reaction mixture to dihydrogen orthophosphates.

8. (Currently amended) A process as claimed in claim 1 wherein ~~the polymerization reaction~~ step (a) is carried out at a temperature of 200-250°C.

9. (Currently amended) A process as claimed in claim 8 wherein the extent of polymerization is judged by chemical tests of the solubility of the neutralized polyphosphate in organic chelates selected from the group consisting of 0.33M citric acid and 0.005M [[DPTA]] DTPA.

10. (Currently amended) A process as claimed in claim 1 wherein the liquid polyphosphate ~~product~~ is neutralized with a base to any pH within 5 to 7.5.

11. (Previously presented) A process as claimed in claim 1 wherein the base for neutralization in step (b) is selected from the group consisting of magnesia, magnesium carbonate, lime and ammonia.

12. (Original) A process as claimed in claim 11 wherein the base for neutralization is ammonia.

13. (Currently amended) A process as claimed in claim 1 wherein the neutralized liquid polyphosphate is dried to a solid form at temperatures not exceeding 100°C.

14. (Original) A process as claimed in claim 13 wherein the dried solid is pulverized to a powdery form.

15. (Canceled)

16. (Previously presented) A process as claimed in claim 2 wherein the phosphoric acid is in an amount equal to or greater than that required to convert all cations in the reaction mixture to dihydrogen orthophosphates.

17. (Previously presented) A process as claimed in claim 3 wherein the phosphoric acid is in an amount equal to or greater than that required to convert all cations in the reaction mixture to dihydrogen orthophosphates.

18. (Previously presented) A process as claimed in claim 4 wherein the phosphoric acid is in an amount equal to or greater than that required to convert all cations in the reaction mixture to dihydrogen orthophosphates.

19. (Previously presented) A process as claimed in claim 5 wherein the phosphoric acid is in an amount equal to or greater than that required to convert all cations in the reaction mixture to dihydrogen orthophosphates.

20. (Previously presented) A process as claimed in claim 6 wherein the phosphoric acid is in an amount equal to or greater than that required to convert all cations in the reaction mixture to dihydrogen orthophosphates.

21. (Cancelled)